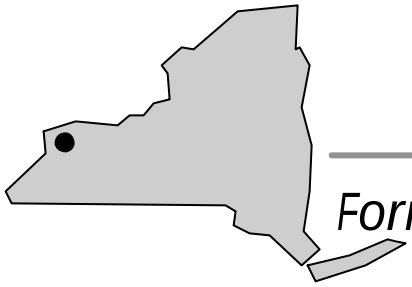
US Army Corps of Engineers



LOOW Fact Sheet

Former Lake Ontario Ordnance Works
Niagara County, New York

Defense Environmental Restoration Program for Formerly Used Defense Sites • June 2001

This fact sheet has been prepared to address community outreach needs and is consistent with provisions of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). Fact sheets are one part of an effort to provide public information on environmental restoration and waste management.

What explosives were produced at the Former Lake Ontario Ordnance Works?

- The Lake Ontario Ordnance Works (LOOW) was constructed in 1942 for the purpose of manufacturing trinitrotoluene (TNT). Production began in October 1942 and ceased in July 1943 due to unexpected overproduction at other plants.

What is TNT?

- TNT is an explosive used in military munitions and in civilian mining and quarrying activities. TNT was first used on a wide scale during World War I and is still used today.
- During production TNT is in the form of a liquid which is then cooled and washed with water to form solid flakes. The flakes can be remelted at low temperatures (180 degrees Fahrenheit) and poured into munitions shells and casings. TNT was widely used by the military because of its low melting point and its resistance to shock or friction which allows it to be handled, stored, and used with comparative safety.
- The TNT produced at LOOW was packaged into boxes, stored, and shipped out by train to other plants where the TNT was loaded into munitions (as described above) for the war effort.

Is the public at risk from an explosion?

- No. The public should be aware of several facts regarding the explosive risks posed by TNT contaminated soils and sediments found at the LOOW site:
- First, in order to detonate, TNT must be confined in a casing or shell and subjected to severe pressures and/or temperatures (936 degrees Fahrenheit) such as from a blasting cap or detonator. In fact, U.S. Army tests on pure TNT show that when struck by a rifle bullet TNT failed to detonate 96% of the time and when dropped from an altitude of 4,000 feet onto concrete, a TNT filled bomb failed to explode 92% of the time.
- Second, the TNT-contaminated sediments from the LOOW pipelines were tested in laboratory experiments and found to be non-detonable unless dried and subject to extreme temperatures and pressures. The residual TNT extracted from the sediments was found to be less shock sensitive than commercial TNT.
- Third, the concentrations of TNT found in the soils and most of the pipeline sediments at the LOOW were very low (less than 1%). In fact, Department of Defense explosive safety guidelines state that sediments or soils which contain less than 10% TNT are not an explosive hazard.

* Technical Note: Contaminant concentrations are often represented in units of "Parts Per Million". A concentration of 1% TNT is equal to a concentration of 10,000 Parts Per Million.